

AN ANALYSIS OF PRODUCTION AND PROCESSING OF ALOE VERA

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ABSTRACT

Aloe Vera is the oldest medicinal plant ever known and the most applied medicinal plant worldwide. Aloe is a powerful detoxifier, antiseptic and tonic for the nervous system. This study would provide guidelines and complete details about the Aloe Vera processing industry to the entrepreneurs who are willing to start a business on Aloe Vera and also it helps to maximize the profit to those who are currently running this type of industry. The cost of cultivation of Aloe Vera was worked out for the farmers who are ready to cultivate this miracle medicinal plant Aloe Vera. Hence, the outcome would be of much useful to the farmers and entrepreneurs.

KEYWORDS: Aloe Vera, Feasibility, Marketing Production and Processing

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INTRODUCTION

Aloe Vera is an important and traditional medicinal plant belonging to the family Liliaceae. Aloe Vera is known by several names like Ghrit Kumari, Kunvar pathu and Indian Aloe and is widely cultivated because of its wide adaptability and use as a medicinal plant especially in dry areas. It is indigenous to Africa and Mediterranean countries. Nearly there are about 150 species in Aloe. Among this species, there is only one variety that has a legendary medical reputation dating back thousands of years, it is the Aloe Vera. Aloe is supposed to be derived from the Arabic “alloeh” meaning “bitter” because of bitter liquid found in the leaves. Aloe can be a good substitute to the synthetic ingredients now being used in cosmetic industry.

Aloe Vera is the oldest medicinal plant ever known and the most applied medicinal plant worldwide. Aloe is a powerful detoxifier, antiseptic and tonic for the nervous system. It also has immune-boosting and anti-viral properties. Research has proven that adding Aloe Vera to one's diet improves digestion. As a general health tonic, Aloe Vera is a useful source of vitamins. Aloe Vera Gel contains a large range of vitamins - even vitamin B12, Vitamin A, contains B-Group vitamins, Vitamin C, Vitamin E and folic acid. Aloe has been marketed as a remedy for coughs, wounds, ulcers, gastritis, Diabetes, Cancer, headaches, arthritis, immune-system deficiencies, and many other conditions when taken internally.

According to a report on aloe worldwide cultivation published by IASC (International Aloe Science Council), there are close to 23,600 hectares of aloe being cultivated at worldwide level, whereas 19,100 of them are located in the Americas. In India, aloe is cultivated in Alwar in Rajasthan, Satanapalli in Andhra Pradesh, Rajpipla in Gujarat and some parts of Tamil Nadu.

Scientific Proof - Aloe Vera

- Contains constituents that accelerate wound healing.
- Helps to reduce inflammation, pain and itching.
- Is a wonderful moisturizing agent and penetrant.
- Is a naturally hypo-allergic and about the same pH as skin.
- Was recently proven to stimulate the body's immune system.

Medicinal Properties and Uses

Aloes have long been in use for several diseases, particularly connected with the digestive system; they have also been used for wounds, burns and skin problems. Its primary use is in cosmetic industry for preparation of shampoo, face creams, shaving creams and moisturizing agents.

It has also diverse use as vegetable and pickle. The leaves possess many medicinal properties and are used to treat fever, enlarged liver, and spleen and other glands. The Food and Drug Administration of the UAS has approved the developmental study of Aloe Vera in the treatment of cancer and AIDS. Traditionally, aloe is extensively used in treating urine related problems, pimples, ulcers, etc.

METHODOLOGY

Madurai district was selected as the study area as it has maximum area under Aloe Vera among the districts of Tamil Nadu. The sample farmers were selected at the rate of twenty five by random sampling method. The farmers list was collected from the Aloe Vera processing industry, Madurai district. Two sets of questionnaires, one for the farmer level and the other for the industry level were prepared and pretested. The primary data were collected using the above questionnaires through personal interview method. Simple percentages and averages were worked out to interpret the data related to different categories of farmers, cropping pattern, general characteristics of the sample farmers in the study area.

RESULTS AND DISCUSSION

General Characteristics of the Sample Farmers

From the results majority of the sample farmers belonged to middle age group. Among the sample farmers most of the farmers (40 per cent of the farmers) were studied up to college level. So the sample farmers might have better knowledge in cultivation of Aloe Vera. Most of the farmers (70 per cent) had an experience between 16- 30 years followed by 20 per cent of the farmers had an experience between 31- 45 years and only 10 per cent of the farmers had an experience of below 5 years. In general it could be inferred that the aged farmers might have better experience in farming. It was observed that 50.0 per cent of sample farmers had holding size of 1-4 ha (small farmers). There was no leased-in and no leased-out land among the sample farmers in the study area. This reveals that most of the farmers could be able to cultivate their crops in their own lands. It could be noted that 50 per cent of the sample farmers had income below 50 thousand rupees followed by 30 per cent of them had income above 15 lakh rupees and only 20 per cent of them had income between 51 thousand to 1 lakh rupees. The main sources of off farm income among sample farmers were Stationary shop and other business. It could be noted that about 20 per cent of the sample farmers had income below 1 lakh rupees followed by 40 per cent of them had income between 1-3 lakh rupees and only 10 per cent of them had income

between 3-5 lakh rupees. It could be noticed from the table that average yield of Aloe Vera was 35 tonnes per hectare and gross return was Rs.1, 05,000. Total cost of cultivation was around Rs. 41, 210 and net return was around Rs. 63, 790. (Table 1) So if invest one rupee in Aloe Vera cultivation we could get Rs. 1.38.

Problems in Cultivation of Aloe Vera

It was seen from the results that most of the sample farmers are ranked first in insufficient organic manure followed by poor sunny conditions in the intercrop of Aloe Vera cultivation and finally concluded with that Aloe Vera was not resistant to the watering stage.

Aloe Vera processing sector

Most of the processing sector purchasing raw materials from various farmers through contract basis. Aloe Vera juice extracted from the Aloe Vera leaves and it is marketed in the name of company brand name throughout the Tamil Nadu and other states and also exporting to foreign countries

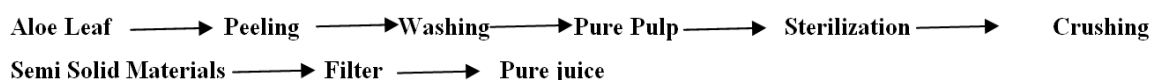
Initial Investment of processing sector

The investment details were presented in Table 2. Total investment cost of Aloe Vera juice processing industry was Rs. 30, 00,000 lakhs. Out of which machinery was Rs. 25, 00,000 lakhs and shed and land costs were 4, 50,000 and 50,000 respectively.

Procurement of Raw materials

The details on procurement of raw materials for the Aloe Vera processing unit were presented in Table 3. It could be noted that 200tonnes/ year of Aloe Vera leaves were purchased for the processing of Aloe Vera unit followed by about 500kgs/ year of preservatives and essence are purchasing for the Aloe Vera processing unit.

Processing of Aloe Vera



Stages of Operation

It could be analyzed from the table 4 that total cost involved in the operation process for the one tone Aloe Vera leaf was about Rs.2450; out of which about Rs.1950 are involved in the labour cost only followed by remaining cost are falls under the electricity cost (Table 4).

Marketing Cost

The total cost involved in the marketing of the product was Rs.5800, out of which the total cost Rs.4000 are involved in the transportation cost followed by only few costs are falls under the labour cost for marketing the product. (Table 5.)

Production Management

They are selling their product in the name of Alloe Health Drink in the competitive market. Their monthly production was around 30 – 40tonnes of Aloe Vera leaves and their average daily production was 1.2-1.5tonnes. For every 1 kg of the Aloe leaf we can get 25 per cent recovery that is 250 ml of Aloe juice. For his industry the monthly demand

was around about 35 tonnes of leaves and yearly demand was around 200 tonnes of leaves.

After the 3rd year of industry started their business, they were achieving the breakeven point. They are exporting their product to Malaysia, Dubai, South Africa and Singapore. Their promotion activities are exhibition and In-shop during summer season only. Their product price details were given in Table 6.

CONCLUSIONS

The study has revealed that majority of the sample farmers belonged to middle age group and studied up to college level. Most of the farmers (70 per cent) had an experience between 16- 30 years followed by 20 per cent of the farmers had an experience between 31- 45 years. In case of income, 40 per cent of them had income between 1-3 lakh rupees followed by 10 per cent of them had income between 3-5 lakh rupees. The average yield of Aloe Vera was 35 tonnes per hectare and gross return was Rs.1, 05,000. The total cost of cultivation was around Rs. 41, 210 and net return was around Rs. 63, 790. So if invest one rupee in Aloe Vera cultivation they could get Rs. 1.38. The major problem faced by the sample farmers were in insufficient organic manure followed by poor sunny conditions in the intercrop of Aloe Vera cultivation.

POLICY RECOMMENDATION

- Govt. has to take initiative to create the awareness about Aloe Vera products and usage to both farmers and consumers.
- Govt. initiatives are needed to broadcast the market information about aloe Vera products.
- The company may further expand the business and develop the value addition unit.
- Govt. may provide subsidies for promotion of entrepreneurs to start Aloe Vera processing unit.

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APPENDICES

Table 1: Details on Returns of Aloe Vera per Hectare

| S. No | Particulars | Value(in Rs) |
|-------|------------------------------|--------------|
| 1 | Average yield in kgs | 35000 |
| 2 | Gross return | 105000 |
| 3 | Total cost of cultivation | 41210 |
| 4 | Net return | 63790 |
| 5 | Gross return/ rupee invested | 0.38 |
| 6 | Cost of production/ kg | 1.15 |

Table 2: Details on Initial Investment of Aloe Vera Juice Processing Industry

| S. No | Particulars | Year of Purchase | Value at Time of Construction or Purchase (in Rs.) | Depreciation Cost (in Rs.) | Current Value (in Rs.) |
|-------|-------------|------------------|--|----------------------------|-------------------------|
| 1 | Land | 2006 | 50000 | - | 500000 |
| 2 | Shed | 2006 | 450000 | 100000 | 350000 |
| 3 | Machineries | 2006 | 2500000 | 1000000 | 1500000 |

Table 3: Details on Procurement of Raw Materials

| S. NO | Particulars | Quantity/year | Value (in Rs.) | Source of purchase |
|-------|------------------|---------------|----------------|--------------------|
| 1 | Aloe Vera leaves | 200M.T | 14,00,000 | From farmers |
| 2 | Preservatives | 500kg | 60,000 | From manufactures |
| 3 | Essence | 500litres | 2,50,000 | From manufactures |
| 4 | Packing material | 40,000 nos. | 90,000 | From manufactures |

Table 4: Details on Cost Involved in the Operation Process for one Tone of Aloe Leaf

| Particulars | Electricity (in Rs) | Labour Hrs (In Days) | Labour Cost (in Rs.) | Machine Hrs | Total Cost |
|---------------------|---------------------|----------------------|----------------------|----------------|----------------|
| Peeling and washing | - | 1 | 1950 | - | 1950 |
| Sterilization | 25 | - | - | 5 | 100 |
| Crushing | 100 | - | - | 10 | 200 |
| Filter | 200 | - | - | 5 | 200 |
| Total Cost | Rs. 325 | 1day | Rs.7800 | 20hours | Rs.2450 |

Table 5: Details on Marketing Cost Involved in the Sale of the Product (Per Tonne i.e. 250 Litres)

| S. No | Particulars | Cost (in Rs.) |
|-------|-----------------------------|---------------|
| 1 | Loading and un loading cost | 300 |
| 2 | Packing + Labour cost | 1500 |
| 3 | Storage cost | - |
| 4 | Weighing charges | - |
| 5 | Transportation cost | 4000 |
| | Total cost | 5800 |

Table 6: Details on Product Price of Aloe Health Drink Juice 500 ml

| S. No | Particulars | Price List (in Rs.) |
|-------|-------------|---------------------|
| 1 | Customer | 140 |
| 2 | Retail shop | 105 |
| 3 | Distributor | 87 |
| 4 | Stock List | 70 |

Table 7: Feasibility Analysis of Aloe Vera Processing Industry

| S. No | Particulars | Amount (in Rs.) |
|------------|--|-----------------|
| I | FIXED CAPITAL | |
| a | Land | 50000 |
| b | Shed | 450000 |
| c | Machineries | 2500000 |
| | Total Fixed Capital | 3000000 |
| II | FIXED COST PER ANNUM | |
| a | Depreciation on shed | 350000 |
| b | Depreciation on machineries | 1500000 |
| c | Permanent labour cost | 624000 |
| | Total Operating Fixed Cost Per Year | 2474000 |
| III | WORKING CAPITAL | |
| a | Raw materials | 1800000 |

| Table 7: Contd., | | |
|-------------------------|--|-----------------|
| b | Operation cost (labour, electricity, fuel, transport, packing materials costs) | 1650000 |
| C | Interest on loan amount | 25000 |
| | Total Working Capital | 3475000 |
| IV | EXPENDITURE | |
| a | Total operating fixed cost per year | 2474000 |
| b | Total working capital | 3475000 |
| c | Interest on working capital (10%) | 347500 |
| | Total Expenditure | 6296500 |
| V | Gross return | 10000000 |
| VI | Net return (V-IV) | 3703500 |
| VII | Gross return per rupee invested (IV/V) | 0.63 |
| VIII | Cost Benefit ratio (V/IV) | 1.58 |